

# MODULE 20: SLAUGHTER HORSE TRANSPORT



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## NATIONAL VETERINARY ACCREDITATION PROGRAM

United States Department of Agriculture • Animal and Plant Health Inspection Service • Veterinary Services

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Approved as one unit of supplemental training for participants in USDA's National Veterinary Accreditation Program

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## Slaughter Horse Transport

This informational module has been approved expressly to serve as one unit of supplemental training for participants in USDA's National Veterinary Accreditation Program. The module is intended to familiarize accredited veterinarians with animal health regulatory concepts and activities. Information in the module does not supersede the regulations. For the most up-to-date regulations and standards, please refer to the Code of Federal Regulations or contact your local VS Area Office.

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## Slaughter Horse Transport

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## Slaughter Horse Transport

### Introduction

As an accredited veterinarian, one of your many roles and responsibilities is to inspect horses, including horses intended for processing, and sign documents allowing them to travel. This is an important task and one that must be done properly to prevent the spread of disease and protect the well-being of horses traveling to processing facilities.

This module will review the federal regulations governing the health, well-being, and paperwork requirements for transporting horses intended for slaughter within the United States and internationally. It will also outline the inspection duties an accredited veterinarian must perform when assessing a slaughter horse's fitness for transport.

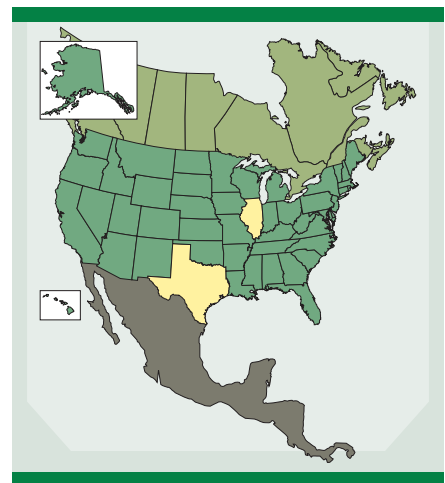
Upon completion of this module, you should be able to:

- Find current health and well-being, regulations for the interstate movement and international export of horses for slaughter;
- Explain why horses need to be healthy to be able to withstand transport due to the physiological stress they will endure while being shipped long distances;
- List conditions that would make a horse unfit to travel;
- Describe the physical exams and assessments that will determine a horse's fitness to travel; and
- Make recommendations to owners and shippers to ensure their horses arrive at their destination humanely and within the legal regulatory framework.

### Overview of Horse Slaughter in the United States

Fueled by the rising costs of owning and maintaining a horse in a slow economy and the demand for horse meat abroad, the horse slaughter industry continues to provide a humane option for horse owners. Every year over 100,000 horses originating in the United States end up at a slaughter facility. In 2006 and 2007 there were 138,206 and 140,911 U.S. origin horses processed, respectively. Prior to 2007, three equine slaughterhouses operated in the United States, two in Texas and one in Illinois. The meat processed in these plants was primarily exported for human consumption to Europe and Japan or sold to zoos and wildlife centers for carnivore diets.

In 2007, the U.S. District Court for the District of Columbia ruled that it was illegal for horse slaughterhouses to pay the USDA for their own health inspections. With additional legal and legislative bans on horse processing in Texas and Illinois, all three processing plants within the United States closed. Inspection is required for the interstate and international movement of meat for human consumption. Since these closures, the numbers of horses shipped to Mexico and Canada for slaughter has increased dramatically.



### USDA Slaughter Horse Transport Program

As horses are transported further distances to be slaughtered, it becomes increasingly important to ensure their physical condition will be able to endure the demands of traveling. USDA-APHIS established the Slaughter Horse Transport Program (SHTP) in 2001 to assess the welfare of slaughter horses during travel and enforce compliance when issues are detected, thus helping to ensure horses travel in a safe and humane manner. The commercial transportation of horses destined for slaughter is federally regulated as described in the Code of Federal Regulations. Information about the SHTP is also available on the USDA's website at: [http://www.aphis.usda.gov/animal\\_health/animal\\_dis\\_spec/horses/horse\\_transport.shtml](http://www.aphis.usda.gov/animal_health/animal_dis_spec/horses/horse_transport.shtml)

To ensure the safe and humane transport of horses, the USDA's Slaughter Horse Transport Program requires the following:

- Separate stallions and other aggressive horses from other horses on the same conveyance and during resting periods.
- Provide adequate food, water, and rest for no less than six consecutive hours prior to transport.
- Confine horses during transport for no longer than 28 hours without food or water.
- Provide adequate floor space.
- Use only single deck trailers in transport.
- The use of owner/shipper certificates. These documents are completed and signed by the owner of the animals or the person(s) responsible for transporting them.

Each of these will be discussed in more detail later in this module.



### Regulations for Commercial Transportation of Equines to Slaughter Facilities

The federally-mandated requirements for the commercial transportation of equines for slaughter are described explicitly in title 9 of the Code of Federal Regulations (CFR), part 88 Requirements for Transport. A brief description of these requirements is given below. For more detailed information on any of the material below, please refer to 9CFR88.4

- Prior to the commercial transport of equine to a slaughter facility, the owner/shipper must:
  - Allow a minimum of six consecutive hours for eating, drinking, and resting before they are loaded for transport
  - Apply a USDA backtag
  - Complete and sign an owner/shipper certificate
- Equines must be loaded on the conveyance so that each equine has adequate floor space and each stallion or any aggressive equine is completely segregated from all other equines on the conveyance.
- Conveyances must be driven in a manner to avoid causing injury to the equines and equines should be observed by the driver as frequently as possible, but not less than once every six hours.
- Any equine in obvious physical distress must be treated by an equine veterinarian as soon as possible.
- Equines that become nonambulatory en route must be euthanized by an equine veterinarian.
- If an equine dies en route, the owner/shipper must contact the nearest APHIS office and allow an APHIS veterinarian to examine the equine.
- Handling of all equines in commercial transportation to a slaughtering facility shall be done as expeditiously and carefully as possible in a manner that does not cause unnecessary discomfort, stress, physical harm or trauma.

To access the full set of regulations in 9CFR 88.4, visit: <http://www.gpo.gov/fdsys/pkg/CFR-2011-title9-vol1/pdf/CFR-2011-title9-vol1-part88.pdf>

### Feed and Rest Requirements during Transport

By law, horses for slaughter must be allowed a minimum of six consecutive hours for eating, drinking, and resting before they are loaded for transport as set forth in the Code of Federal Regulations, title 9, part 88 (Commercial Transportation of Equines for Slaughter). Under the 28-hour law set forth in the CFR, title 9, part 89 (Statement of Policy Under the Twenty-eight Hour Law), horses can spend up to 28 consecutive hours on a conveyance and then they must be unloaded, provided equine-appropriate food, potable water, and an opportunity to rest for a minimum of six hours.

The amount of hay shippers are required to supply to their horses during rest breaks is determined by the length and therefore, animal capacity, of their transport vehicle. Regulations require 400 lbs of hay for a 40 foot conveyance; shippers hauling a standard 53 foot semi-trailer would need to provide 493 pounds of hay to their horses. Considering a single-deck 53 foot semi-trailer holds 30-32 horses, each horse should be provided 15.5-16.5 pounds of hay per feeding.





If equines remain at a feedlot for more than 12 hours and will not reach their next feedlot or final destination within 40 hours of their first feeding, they are required to be fed again in the same manner as above. For more details on the feeding and resting requirements for transporting horses, refer to 9CFR89.1 and 9CFR89.2 at: <http://www.gpo.gov/fdsys/pkg/CFR-2011-title9-vol1/pdf/CFR-2011-title9-vol1-part89.pdf>

## Types of Horse Transport Vehicles

There are several types of transport vehicles designed to carry horses which vary in their size and capacity. Large, commercial semi-trailers hold more animals and are typically used to haul longer distances than gooseneck trailers. Livestock semi-trailers can be up to 53 feet long and come in single deck and double-deck designs. The single deck carries all horses on one level and can hold 30-32 adult horses. These trailers have a lower incidence of injuries than double-deck trailers and as such, are the required trailer for the commercial shipment of slaughter horses.

The double-deck design carries horses on two levels and can accommodate 42-44 horses. However, double-deck trailers do not offer sufficient head room for horses larger than foals or ponies. U.S. federal regulations prohibit the use of these trailers for the transport of horses to slaughter.

Gooseneck livestock trailers have a much smaller capacity, 6-15 horses, and are therefore not commonly used by commercial haulers to transport horses to slaughter. These trailers may be either fully enclosed or have an open top, and the length of these trailers vary depending on the number of horses they are designed to carry, but can extend up to 38-40 feet. To minimize increased stress and frequency of injuries in horses, a trailer should not be overloaded beyond its normal capacity.



## Knowledge Review #1

**Which of the following statements regarding slaughter horses in the U.S. is FALSE?**

- A.** Horses can be transported a maximum of 28 hours before resting.
- B.** There are two USDA inspected horse slaughter facilities in the United States.
- C.** The primary market for horse meat is human consumption in Europe and Japan.
- D.** Owner/shipper certificates are signed by the owner or the transporter, not the accredited veterinarian.
- E.** During a six hour rest period, horses must be offered feed and water.

**Answers are found in the appendix.**

## The Physiology of Horse Transport

While it is legal to ship horses for 28 consecutive hours, practices such as these create significant amounts of physiological stress. When animals are stressed, cortisol is secreted from activation of the hypothalamic-pituitary-adrenal axis and may influence immune function and other physiological responses such as increased blood glucose levels. If cortisol-mediated responses reach a certain magnitude and/or duration, they can cause significant immunophysiological disturbances. For example, horses with prolonged elevated blood glucose concentrations due to chronic high cortisol secretion can develop insulin resistance, which may lead to muscle wasting and chronic, recurring laminitis.

Research has repeatedly shown that a 24-hour transport in a commercial trailer can cause physiologically significant rises in cortisol and suppression of lymphocytes. This alteration can make horses more susceptible to infections or exacerbate current health conditions, so it is important that horses are healthy before they begin travel.

*Source:*

- Stull C, Rodiek A. *Physiological Responses of Horses to 24 Hours of Transportation Using a Commercial Van During Summer Conditions.* Journal of Animal Science 2000;78:1458-1466.

## Minimizing Immunologic Stress

When possible, dividing long trips into several shorter segments can reduce the immunologic stress horses endure. Transporting horses has been shown to diminish levels of T cells, specifically CD3, CD4, and CD8b. The degree of reduction in T cell numbers was greater in horses shipped for 24 consecutive hours than horses shipped in two 12-hour segments with a 12-hour resting period in between. During resting periods, cortisol levels also returned to more normal values, indicating horses were less immunologically stressed. Allowing horses sufficient time to rest, eat, and drink is an important part of keeping horses healthy during long journeys.

Source:

- Stull C, Morrow J, Aldridge B, et al. *Evaluation of the Immunophysiological Benefits in Horses of a 12-Hour Rest During 24 Hours of Road Transport.* The Veterinary Record 2008;162:609-614.

A decreased immune response combined with exposure can lead to disease. Confining horses in close proximity to each other increases their chances for exposure to contagious agents. During times of stress, horses harboring disease often transmit greater numbers of infectious agents. Horses are particularly susceptible to contracting respiratory infections because many of these agents are transmitted in aerosols and reduced ventilation in trailers increases their concentration within the conveyance. Following the recommendations for safe transport discussed later in this module can help reduce transport-related illnesses and injuries.



## Heat Stress during Transport

When horses are being transported, they must continually adjust their position to keep their balance; an effort that requires repeated muscle contractions. In the horse, 75-80% of muscle metabolism is released as heat that must be dissipated from the body to prevent over-heating. The primary mechanism of heat loss is achieved by sweating, along with evaporation of water across the respiratory tract. For sweating to properly release heat, the ambient temperature must be lower and ambient air must contain less moisture than the horse's skin. As ambient temperatures rise, the thermal gradient between the skin and the external environment decreases, and heat loss is impaired.

Heat stress can be a serious concern for horses transported in hot weather because they are grouped in a confined space on the trailer with limited ventilation and no access to water. A horse's homeothermic capabilities vary based on the climate it is acclimated to, but all horses should be transported in a fashion that maintains their rectal temperature below 102°F (38.9°C). Reducing loading density by 25% (of the published recommended loading density) is recommended to minimize heat stress.

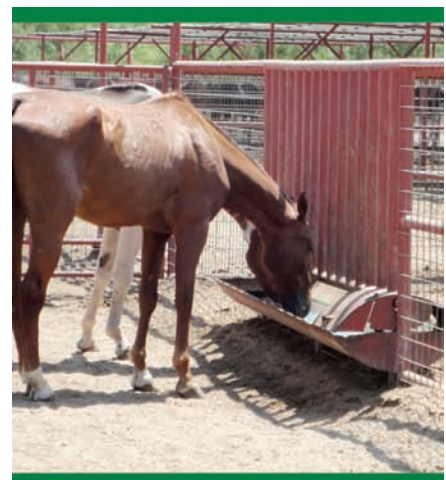
Sources:

- Geor R, McCutcheon L. *Thermoregulatory Adaptations Associated with Training and Heat Acclimation.* The Veterinary Clinics of North America, Equine Practice 1998;14:97-120.
- Foreman J. *The Exhausted Horse Syndrome.* The Veterinary Clinics of North America, Equine Practice 1998;14:205-218.

## Dehydration during Transport

Dehydration also impairs thermoregulatory capabilities and is often seen in horses transported in warm weather for long durations. In the 2000 study by Stull and Rodiek, horses showed an average 6% loss of body weight when unloaded after conveyance and had a significant increase in hematocrit. Dehydration is attributed to sweating due to the prolonged time spent in hot enclosures and decreased water intake as horses are held off water during transport.

Without proper attention, severe dehydration can lead to hypovolemic shock and other circulatory disturbances such as peripheral and pulmonary edema, laminitis, and disseminated intravascular coagulation. Because horses arriving at slaughter facilities can be overheated and dehydrated, it is important to offer them free access to water as soon as possible. This will help return their body temperature to within normal range and prevent further circulatory disturbances.

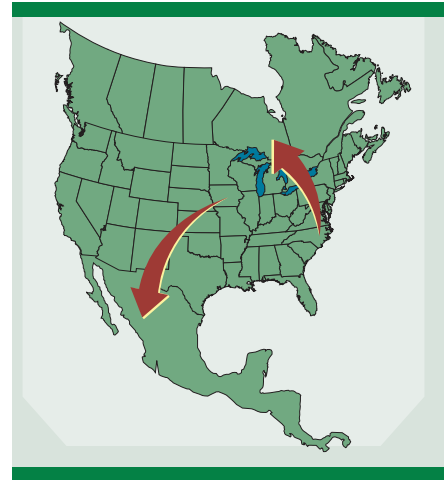




## Transporting Unacclimated Horses to New Climates

Heat stress is a concern for all horses spending considerable lengths of time in conveyance. It is particularly dangerous for horses that are not acclimated to high temperatures and humidity, such as those being transported to Mexico from more temperate climates. Therefore, during transport, these horses should be monitored closely for signs of heat stress which includes profuse sweating, rapid breathing, and rapid heart rate. Providing ample amounts of water before traveling and at rest stops as well as maintaining proper ventilation within the conveyance can help reduce heat stress.

Horses that are transported to Canada for slaughter may also be exposed to temperature extremes to which they are not well acclimated. Horses without thick winter hair coats can easily become chilled in winter weather, and may suffer from frostbite on their ears and tails if temperatures are extremely cold (below 14°F/-10°C). The use of open-topped livestock trailers would not be appropriate for animals traveling to cold climates, especially if there is precipitation, and you should avoid transporting horses if they are wet or damp. When possible, conveyances should be adjusted to provide the most appropriate protection in changing weather conditions.



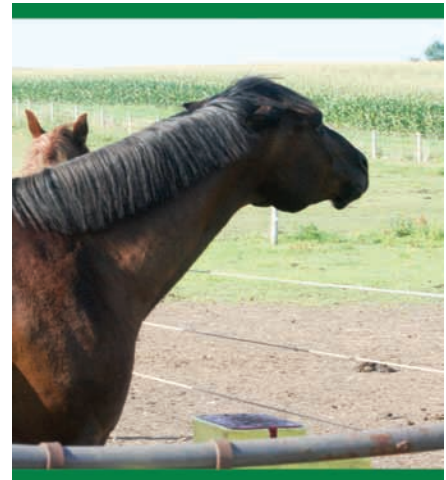
## Psychological Stress

Horses that are sent to slaughter may not be experienced travelers, and the process of loading and shipping can cause physical injuries and significant psychological stress. In addition to increases in cortisol, studies have shown that a horse's heart and respiratory rates are increased well above baseline values during loading and the first 6-12 hours of transport.

Source:

- Schmidt A, Mostl E, Wehnert C, et al. Cortisol Release and Heart Rate Variability in Horses During Road Transport. *Hormones and Behavior* 2010;57:209-215.

Horses that are unfamiliar with the loading process may exhibit fearful or aggressive behavior including pinning of the ears, striking, kicking, or shying away from the vehicle. When handling horses, it is important to remain calm and move slowly. Sudden movements can scare horses and create dangerous situations for both horses and handlers. Horses should be approached at an angle between their head and shoulder and encouraged to move forward by gently prodding behind the shoulder with hands, canes or sticks, never with whips or electric prods. Following proper horse handling guidelines will reduce injuries to the animals and people involved, and will help minimize psychological stress in horses.



## Knowledge Review #2

Stress from shipping increases which of the following values? Select all that apply.

- A. Cortisol
- B. Body weight
- C. Hematocrit
- D. Lymphocytes

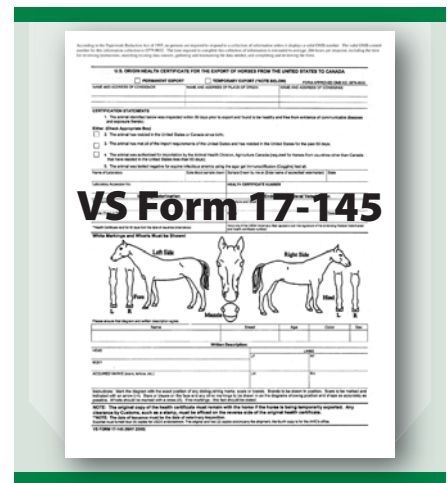
Answers are found in the appendix.

## Paperwork Requirements for Transport

As of November 1, 2011, there were no slaughter horse facilities operating within the United States. Now, horses intended for slaughter are exported to either Canada or Mexico. Such horses must be accompanied by a United States Origin Health Certificate (VS Form 17-140), issued in the State of origin. Canada accepts either the VS Form 17-140

United States Origin Health Certificate or VS Form 17-145 U.S. Origin Health Certificate for the Export of Horses from the United States to Canada. Mexico requires VS Form 10-13 Owner/Shipper Certificate, an import permit issued by the Mexican Animal Health authorities, an international health certificate (VS Form 17-140 United States Origin Health Certificate), and an affidavit provided by the owner/shipper attesting to the fact that certain drugs have not been given to the horses within the past six months prior to entry.

Exported horses must be born and raised within the United States or have been properly imported to the U.S. more than 60 days prior to the date of export and moved in cleaned and disinfected carriers or containers. For specific country import requirements, refer to the International Animal Export Regulations website <http://www.aphis.usda.gov/regulations/vs/iregs/animals/>. *NVAP Module 8: Equine International Export Health Certificates* describes the procedures that need to be completed for proper export.



### Paperwork Requirements for Export

When completing export forms, it is imperative to follow the regulations to ensure the animal is properly represented and travel is allowed. If items are not completed correctly or omissions are made, animals may not be allowed to enter another state or country. They may be subject to confiscation, lengthy quarantines, or entry refusal. Any of these conditions can lead to unnecessary stress on the animal and its owner/shipper, as well generate added expenses for the owners and transporters. Furthermore, incorrect or misleading information can result in criminal or civil penalties, loss of state licensure, and/or Federal accreditation status.

Any questions regarding the specific country requirements should be referred to the USDA International Animal Export Regulations website at <http://www.aphis.usda.gov/regulations/vs/iregs/animals/>

The European Union, a large consumer of horse meat, has strict regulations governing the administration of pharmacologic substances to food animals, including horses. Effective July 2010, all horses slaughtered for human consumption at Canadian Food Inspection Agency (CFIA) inspected facilities in Canada must have complete medical records. These records include unique identification for each animal, a record of illness, and a record of medical treatments administered to the animal for the six-month period preceding slaughter. The Equine Information Document (EID), completed by the owner, represents and provides for the minimum requirements of written and pictorial identification as well as a record of medical history and declaration for equine (horses, donkeys, zebras and their crosses) presented for slaughter in Canada.

Horses without these documents may be held at a feedlot in conjunction with the slaughtering facility for six months prior to slaughter to ensure the animals have not consumed or been administered any banned substances during that time. A template of the EID and complete regulations required by the CFIA for equines slaughtered for edible products are available here: <http://www.inspection.gc.ca/english/fssa/meavia/man/ch17/annexee.shtml> Because export requirements can change without notice, it is best to check with the destination country or the VS Area Office for the most up-to-date information. For a listing of the VS Area Office nearest you, visit: [http://www.aphis.usda.gov/animal\\_health/area\\_offices/](http://www.aphis.usda.gov/animal_health/area_offices/)



### Documentation Requirements for Interstate Transport

Horses destined for slaughter are often first transported to a feedlot located in a State bordering Mexico or Canada for fattening. In these cases, a Certificate of Veterinary Inspection (CVI) must be issued in the State of origin and meet the import requirements of the State of destination.

Since interstate requirements are subject to change, you should contact the office of the State Animal Health Official (SAHO) in the destination state for the most current requirements. A list of SAHOs is available at: <http://www.usaha.org/StateAnimalHealthOfficials.aspx>

### Certificate of Veterinary Inspection (CVI)

A CVI issued by an accredited veterinarian is an important part of his or her role in preventing the spread of communicable diseases in interstate movement. The CVI must certify that the animal(s) was/were carefully and physically inspected and found to be healthy and free from evidence of and exposure to communicable disease(s). Under no circumstance should a certificate be completed and signed when the health of an animal is questionable or the information provided is not accurate.

### Infectious Disease Regulations

If horses are transported while infected with a contagious or communicable disease, the potential exists to spread that disease to other horses in other areas of the country or internationally. The accredited veterinarian must not issue a CVI or health certificate for any animal that is infected with, or tests positive to a laboratory test for, a contagious or communicable disease.



As of July 2011, federal regulations allow livestock affected with one or more of the following diseases to be moved interstate for immediate slaughter to a slaughtering establishment where State or Federal meat inspection is maintained:

- Actinomycosis\*
- Actinobacillosis\*\*
- Anaplasmosis (Disease Brief can be found in the Appendix)
- Ringworm
- Arthritis (simple lesions only)
- Equine Infectious Anemia only when transported under official permit and seal

Without equine slaughter facilities in the United States, this is not a viable option. Instead, owners wanting to send infected horses to slaughter should have his/her accredited veterinarian contact the APHIS Area Veterinarian-in-Charge to verify regulations in the destination country concerning this issue.

\*Actinomycosis occasionally manifests as fistulous withers or poll evil in horses. When the causative bacteria, *Actinomyces bovis*, infect the respective supraspinous or supra-atlantal bursae, it can cause an inflammatory condition. Inflammation leads to thickening of the bursa wall and swollen bursae may rupture, creating a fistulous draining tract. Exudate in the infected bursa is usually clear, straw-colored, and viscous and may become suppurative from secondary infections if the sac ruptures or is open.

\*\*Actinobacillosis in horses is caused by ingestion or inhalation of, or umbilical contamination with, the bacterium *Actinobacillus equuli*. Clinical illness most often occurs in foals, and may manifest as diarrhea followed by meningitis, pneumonia, purulent nephritis, or septic polyarthritis. Abortions, septicemia, nephritis, and endocarditis are seen in adults infected with *A. equuli*.

### Equine Infectious Anemia

Equine Infectious Anemia (EIA) is a disease caused by the blood-borne equine infectious anemia virus and affects horses, asses, mules, ponies, zebras, and other members of the Equidae family. EIA virus is transmitted by vectors (mosquitoes, tabanids, horse flies, and deer flies) and infections can be acute and fatal or chronic and mild; still others are inapparent. Hallmark signs include fever accompanied by marked platelet reductions, petechial hemorrhages, anemia, depression, weight loss, cachexia, and dependent edema. In acute cases, the spleen and splenic lymph nodes are enlarged.

The Coggins Agar Gel Immunodiffusion (AGID) test and several Competitive Enzyme-Linked Immunosorbent Assays (cELISA) are recognized by the USDA as valid and reliable for the diagnosis of EIA. For more complete information on equine infectious anemia, refer to the USDA fact sheet available at: [http://www.aphis.usda.gov/publications/animal\\_health/content/printable\\_version/fs\\_equine\\_infectious\\_anemia.pdf](http://www.aphis.usda.gov/publications/animal_health/content/printable_version/fs_equine_infectious_anemia.pdf)

### Equine Infectious Anemia Regulations

No EIA reactor may be moved interstate unless the reactor is officially identified, is accompanied by a certificate,



and meets the conditions of 9CFR75.4, either paragraphs b1, b2, b3, or b4. An EIA reactor is any horse, ass, mule, pony, or zebra which is subjected to an official test and found positive. However, if moved directly to slaughter, under permit, in an officially sealed conveyance, official identification is not necessary.

For more information on laboratories approved for EIA testing, rules regarding their transportation, or a description of the requirements of an official identification, refer to 9CFR75.4 at: <http://www.gpo.gov/fdsys/pkg/CFR-2011-title9-vol1/pdf/CFR-2011-title9-vol1-part75.pdf>

## Code of Federal Regulations Pertaining to Commercial Transport of Horses to Slaughter

The next few pages address the Federal Regulations that pertain to qualifying a horse as 'fit to transport'.

Before commercial shipments of horses can be transported to a slaughter facility, the owner/shipper must:

- Provide each equine with appropriate food, potable water, and the opportunity to rest for a period not less than six consecutive hours immediately prior to the equines being loaded on the conveyance.
- Apply a USDA backtag issued by APHIS that conforms to the eight-character alpha-numeric National Backtagging System and that provides unique identification for each animal.
- Complete and sign an owner/shipper certificate (VS Form 10-13) for each equine that shall accompany that animal throughout transit to the slaughtering facility.
  - Included with this certificate must be a statement of fitness to travel at the time of loading, which will indicate that the equine is:
    - » Able to bear weight on all four limbs,
    - » Able to walk unassisted,
    - » Not blind in both eyes,
    - » Older than six months of age, and
    - » Not likely to give birth during the trip.
  - While the accredited veterinarian is not required to sign off on the VS Form 10-13 owner/shipper certificate, his or her role in issuing health certificates is an important first step in the transport process. A veterinarian's education also makes him/her a reliable consultant for questions an owner or shipper might have on equine health.



## Owner/Shipper Certificates

An owner/shipper certificate (VS Form 10-13) serves to document every equine on the conveyance. The following items must be completed legibly (in ink or typewriter) on the certificate:

- The owner/shipper's name, address, and telephone number.
- The receiver's name, address, and telephone number.
- The name of the auction/market where the horse was purchased (if applicable).
- A description of the conveyance, including the license plate number of the trailer, not the truck or tractor pulling the conveyance.
- The date, time, and location the horses were loaded.
- A description of each equine's physical characteristics, including such information as sex, breed, coloring, distinguishing marking(s), permanent brands, tattoos, and electronic devices that could be used to identify the equine.
- A description of any preexisting injuries or other unusual condition of the equine, such as a wound or blindness in one eye, that may cause the equine to have special handling needs.
- The owner/shipper must sign the statement that the equine was provided access to food, water, and rest prior to transport.

U.S. DEPARTMENT OF AGRICULTURE ANIMAL AND PLANT HEALTH INSPECTION SERVICE		According to the Department Regulation No. 1 of 1966, the owner, shipper or consignee is required to complete this form and attach it to the back of the animal's identification tag. The form must be completed for all animals transported in interstate commerce. The form must be completed for all animals transported in interstate commerce. The form must be completed for all animals transported in interstate commerce.		FORM APPROVED 9/8/00 0579-0160
<b>OWNER/SHIPPER CERTIFICATE</b> FITNESS TO TRAVEL TO A SLAUGHTER FACILITY (Please print or type name)				
NAME OF HORSE(S) ON CONVEYANCE	DATE	CITY AND STATE WHERE HORSES WERE LOADED ON CONVEYANCE		
VEHICLE LICENSE NO. AND TRUCKER'S NAME		NAME OF AUCTION/MARKET		
VEHICLE/SHIPPER/SHIPPER'S NAME		CONSIGNEE'S ADDRESS (OPTIONAL NAME)		
STREET ADDRESS		STREET ADDRESS		
CITY, STATE, ZIP CODE		CITY, STATE, ZIP CODE		
AREA CODE & TELEPHONE NO.		AREA CODE & TELEPHONE NO.		
CHECK THE BOX THAT INDICATES THE FOLLOWING IS TRUE FOR ALL THE HORSES ON THIS CERTIFICATE <input type="checkbox"/> Pregnant mares are not likely to foal (give birth) during the trip. <input type="checkbox"/> Horses are able to bear weight on all 4 limbs. <input type="checkbox"/> Horses are older than 6 months of age. <input type="checkbox"/> Horses are not blind in both eyes. <input type="checkbox"/> Horses are able to walk unassisted.				
AGE	SEX	COLOR DESCRIPTION	BRANDS/TATTOOS	REMARKS
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
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12				
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# VS Form 10-13

For more details on completing an owner/shipper certificate refer to 9CFR88.4 at: <http://www.gpo.gov/fdsys/pkg/CFR-2011-title9-vol1/pdf/CFR-2011-title9-vol1-part88.pdf>

If an equine is traveling when temperatures are expected to be below 45°F (7.2°C), an accredited veterinarian must issue a certificate no more than 10 days prior to travel stating that said animal is acclimated to air temperatures <45°F (7.2°C). This statement can be written or typed on the VS Form 10-13 owner/shipper certificate. For complete regulations, refer to 9CFR3.136.

### Knowledge Review #3

**Which of the following would NOT disqualify a horse as ‘fit to transport’? A horse that is:**

- A.** Unable to bear weight on all four limbs
- B.** Blind in both eyes
- C.** Unable to walk unassisted
- D.** Eight months of age

**Answers are found in the appendix.**

### Assessing a Horse’s Fitness to Travel

In addition to meeting any health requirements of the destination state or country, horses for slaughter must also be sufficiently fit to endure the rigors of the journey. The horses must be able to support weight on all four limbs, be able to walk unassisted, not likely to give birth during transport, be older than six months of age, and not blind in both eyes. These requirements are important for ensuring the comfort of the animal and must be strictly adhered to. The next few pages will review some basic physical assessments that an accredited veterinarian should perform when inspecting horses and preparing them for interstate or international travel.

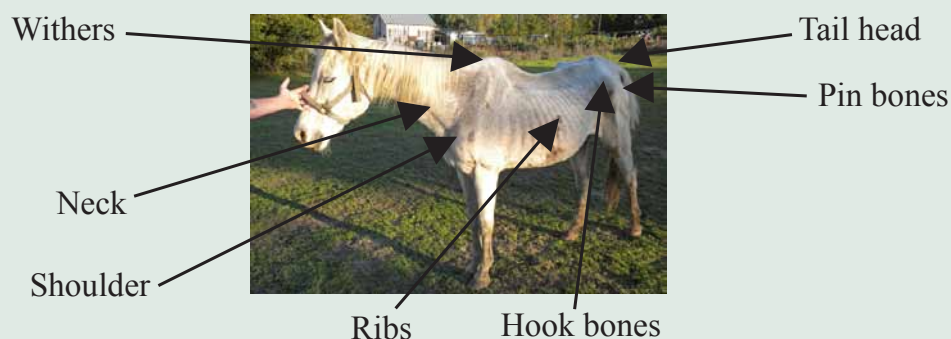
### Body Condition Scoring

To cope with the stresses of the journey, horses should have a healthy body condition score (BCS). Horses are typically ranked on a body condition scale that ranges from 1- very emaciated to 9 - extremely fat. Although the criteria for each BCS are well described, scoring animals is still a subjective process. Variables such as breed, color, gestation, age, lighting condition, etc. can alter the visual appearance of a horse’s body condition. Therefore, to make a more accurate assessment, it is important to palpate the body of the horse and feel for fat. When in doubt, it is best to err on the lower end of the scale for the horse’s well-being.

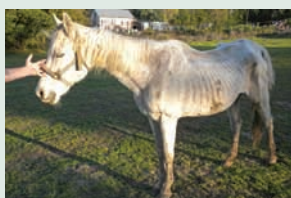


### Lowest Four Body Condition Scores

On the next page is a review of the criteria for the lowest four body condition scores annotated with pictures for each score. The pictures are examples and should not be substituted for a hands-on examination. Let’s start with a review of the anatomy of a horse for reference:



BCS  
1.



### 1. Emaciated

The spinous processes of the vertebrae, ribs, tailhead, and hook and pin bones are all prominently seen. The bones of the withers, shoulders, and neck are also easily identified, and no fat is palpable anywhere. Considered unfit to travel.

BCS  
2.



### 2. Very Thin

The vertebral spinous processes are prominently seen, as well as the ribs, tailhead, and hook and pin bones. The bone structures of the withers, neck and shoulders are still fairly noticeable.

BCS  
3.



### 3. Thin

The spinous processes are still outstanding; however, their lower halves are covered by fat. The individual vertebrae are not distinguishable. A very thin layer of fat can be felt over the ribs. The tailhead is prominent; however, the pin bones are not visible. Hook bones are visible but rounded. The withers, shoulders, and neck are all accentuated.

BCS  
4.



### 4. Moderately Thin

The horse's spinous processes create a negative crease along the back. The rib outlines are faintly seen. Hook bones are not visible, and the withers, neck, and shoulders are not obviously thin. Fat can be felt around the tailhead.

For a full description of Equine Body Condition Scores, please see the document in the Appendix.

Source:

- Henneke D, Potter G, Kreider J, et al. Relationship Between Condition Score, Physical Measurements, and Body Fat Percentage in Mares. *Equine Veterinary Journal* 1983;15:371-372.

## Fitness to Travel Based on BCS

Horses with a body condition score of less than two should not be approved for transport. Their poor condition poses a serious health concern. Horses with a body condition score of two should only be transported with special provisions, which include:

- Extra bedding;
- Loading last in the rear compartment;
- Offloading first;
- Separation from other animals;
- Penning with familiar companion animals if possible; and
- Local transport only.

If a horse has a BCS of two and other physical ailments, transport to slaughter may not be recommended at all. BCS is just one of several assessments to be conducted in an overall fitness to travel examination.

## Lameness Scoring

Lameness in horses can result from a variety of conditions such as fractured limbs or pelvis, laminitis, tendon or ligament injuries, and many other musculoskeletal disorders. For a horse to be transported to slaughter, it must be able to walk unassisted and be able to support its weight on all four limbs. The American Association of Equine Practitioners (AAEP) has created a lameness grading system that provides a consistent scale for assessing lameness. The scale ranges from zero to five, with zero being no perceptible lameness, and five being the most extreme. The animal should be observed walking and trotting on solid, non-slip flooring for best assessment.



- Grade 0: lameness not perceptible under any circumstances
- Grade 1: lameness is difficult to observe and is not consistently apparent, regardless of circumstances (e.g., under saddle, circling, inclines, hard surfaces, etc.)
- Grade 2: lameness is difficult to observe at a walk or when trotting in a straight line, but consistently apparent under certain circumstances (e.g., weight-carrying, circling, inclines, hard surfaces, etc.)
- Grade 3: lameness is consistently observable at a trot under all circumstances
- Grade 4: lameness is obvious at a walk
- Grade 5: lameness produces minimal weight bearing in motion and/or at rest or a complete inability to move

Horses with a Grade 4 or 5 lameness score should not be approved as fit to transport because they would not meet the aforementioned ambulatory requirements. These horses should be treated immediately by a veterinarian, either on the farm or at a clinic, or be humanely euthanized. Horses with a Grade 3 lameness score should be transported only under special provisions as discussed previously.

### Pregnancy Evaluation

A mare is unfit to travel if it is likely that she will foal during transport. A mare should be observed for signs of late gestation before she is approved for transport, and if she appears close to term, she should not be approved for travel. Some of the signs of late gestation include relaxation of the vulva, hollowing or softening of the muscles on either side of the tailhead, and an udder that appears full with wax-like beads or milk droplets on the tips of the teats.

When in question, it may be necessary to palpate or ultrasound a mare to confirm pregnancy. An accredited veterinarian should carefully evaluate every mare to determine if she is pregnant, how close she may be to foaling, and make appropriate recommendations.

### Dental Aging

Horses less than six months of age cannot be transported to slaughter. Dentition is the most accurate way to determine a young horse's age. Foals erupt their deciduous incisors at predictable ages within their first year of life.

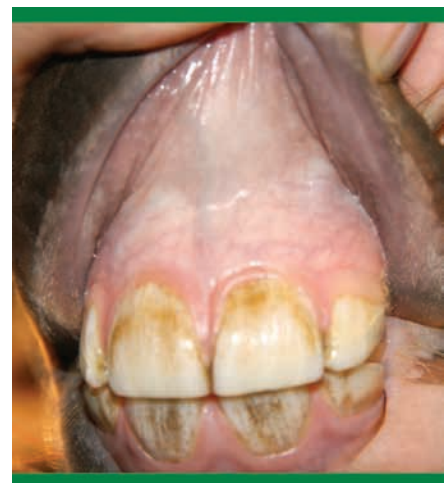
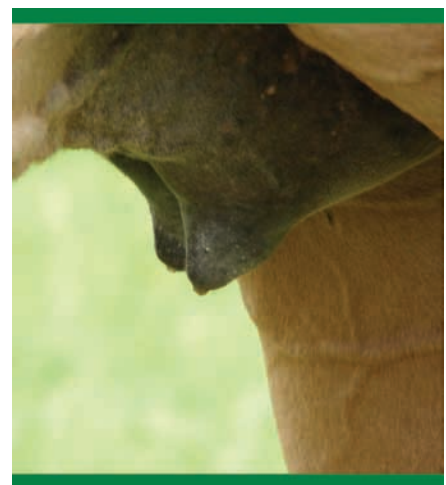
- Deciduous incisor 1 (Di 1) erupts during the first week of life
- Deciduous incisor 2 (Di 2) erupts at 4-6 weeks of age
- Deciduous incisor 3 (Di 3) erupts at 6-9 months of age

It can therefore be inferred that if a foal has erupted its third deciduous incisor it is at least six months old and fit to be transported to slaughter. Please refer to Appendix G, Equine Teeth and Aging, pages 173-193 of the National Veterinary Accreditation Program (NVAP) Reference Guide (2011) for more information.

Link to NVAP Reference Guide (2011): [http://www.aphis.usda.gov/animal\\_health/vet\\_accreditation/downloads/nvap\\_ref\\_guide.pdf](http://www.aphis.usda.gov/animal_health/vet_accreditation/downloads/nvap_ref_guide.pdf)

### Visual Exam

It is illegal to ship horses that are blind in both eyes due to concerns with their well-being in unfamiliar surroundings. When assessing a horse's fitness to travel, it is important to watch how it moves about its surroundings. If the horse has difficulty navigating obstacles, perform a few simple vision tests to assess its field of vision.



According to Dennis Brooks, DVM, PhD, Dipl. ACVO, the best equine test for vision is the “dazzle reflex”, a sensitive test for retinal function. An observer watches to see if the horse squints in response to shining a bright light into the eye. Although there might be a variable pupillary response to the light, squinting denotes the perception of light. If the horse’s cornea is opaque, and yet squints, then the retina is still functioning.

Covering one of the horse’s eyes and testing the menace reflex of the horse from all quadrants in the visual field of the other eye may give an estimate of each of the fields of vision. However, assessment of a menace reflex from hand motion is a crude measure, making it hard to determine if the horse is reacting to the feel of air or to hand motion. Therefore one should begin movement towards the eye with a pointed finger or soft object, such as folded gauze, to reduce air currents.



### Knowledge Review #4

**You examine the teeth of a young horse to determine if it is old enough to be shipped to slaughter. Which teeth should be erupted in a horse older than six months?**

- A.** Di 1
- B.** Di 1 and 2
- C.** Di 1, 2, and 3

**Answers are found in the appendix.**

### Scenario: Assessing a Horse’s Fitness to Transport to Slaughter

Joe, a client of yours tells you he is looking to thin out his herd a bit and has several horses he intends to take to an auction out of state where they will most likely be purchased for slaughter. He asks you to look at the horses and make sure they will all pass inspection for slaughter and help him get the necessary paperwork together.

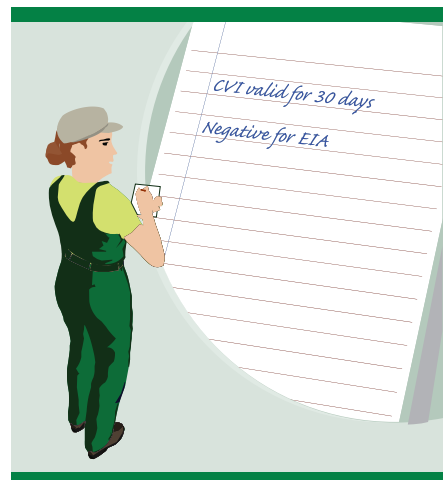
You ask Joe how soon he plans on transporting the horses. “The sale is in 6 weeks,” Joe says.

#### Requirements for Movement

You tell him that the horses will need a Certificate of Veterinary Inspection in order to travel across state lines, and in your state, those documents are only valid for 30 days. He needs to schedule an appointment to inspect the horses two or three weeks from now. You also tell him that the horses will need proof of a negative Coggins test, so if they have not been tested for equine infectious anemia (EIA) within the last year, they will need to have that done while you are there as well.

“But Doc, my friend shipped some horses to slaughter a couple months ago and her horses didn’t need a Coggins test,” Joe says.

You reply, “That may be true, because horses that are shipped directly to slaughter do not always need proof of being negative to EIA. However, since you are selling your horses to an intermediate at an auction, they need to have a Coggins test done.”



#### Initial Assessment

You arrive at his farm 23 days prior to his planned date to transport the horses to the auction. Joe has six horses waiting in an outdoor pen. On initial observation, you see five fairly thin horses and one mare that looks much fatter than the others.

You ask Joe if it is possible that any of the mares are pregnant. As you suspected, he tells you that the mare has been living in a pasture with a stallion for the past year and it is possible that she is, but he never bothered to check her to verify the pregnancy. “Is this going to be a problem Doc?” Joe asks.

### Knowledge Review #5

**Given the mare could be pregnant, what recommendation(s) could you make to your client? Select ALL that apply.**

- A.** Examine the mare, and if she appears close to foaling, do not ship her.
- B.** Examine the mare, and if she appears to be only a few months pregnant, approve her to transport.
- C.** Do not examine the mare, but approve her to ship because it is very unlikely she will foal during transit.

**Answers are found in the appendix.**

### Transporting Pregnant Mares

You take a closer look at the mare, and she does indeed appear to be in late gestation. You tell Joe, “This mare is not fit to travel. It is possible that she could foal during transport.” Next you take a closer look at the other five horses.

### Body Condition Assessment

As you walk into the pen, you notice that the remaining five horses are thin and you can easily see their ribs. You begin palpating the body of one of the horses to assess its body condition. You can feel the spinous processes and ribs, but they are partially covered in fat and you cannot easily discern individual vertebrae. The hook bones are visible but appear rounded and you cannot see pin bones. You palpate the other horses and they are all in similar condition.



### Knowledge Review #6

**Based on the descriptions provided on the previous page, what is the closest estimate of these horses' body condition score?**

- A.** 1
- B.** 3
- C.** 5

**Answers are found in the appendix.**

### Body Condition Scores

You tell Joe, “On a body condition scale from one to nine, I would say these horses score a three. This means that they have enough weight on them to travel, but it wouldn't hurt to throw them a little more hay. They are a little on the thin side and they would be worth more at auction if they weighed more. Also, it is likely that they will lose water weight when they travel, so it is important to make sure their nutritional needs are met before they are loaded.”

### Lameness Assessment

You ask Joe to walk each horse in a straight line so that you can judge its leg and gait soundness. Most of the horses walk out easily without any discernible lameness. One horse is visibly lame on his right hind leg, even at a walk. When Joe stops him, you notice the horse favors that leg and carries all of his weight on the other three legs. You judge this horse to have a Grade 4 lameness.





## Knowledge Review #7

**With regards to shipping a horse with a Grade 4 lameness without any medical intervention, what would you recommend to Joe?**

- A.** Ship the horse under normal conditions
- B.** Ship the horse only under special provisions
- C.** Do not ship the horse

**Answers are found in the appendix.**

### Lameness Score

You tell Joe, “I’m sorry, but this horse is too lame to be traveling long distances. She has to be able to support weight on all four legs to be approved for transport and I don’t think she can comfortably do that. This horse should not be transported. I would recommend you let me perform a more in depth evaluation and treat her if possible, or consider humane euthanasia.”

While Joe considers these options, you continue your inspection on the remaining four horses so that you can fill out the Certificate of Veterinary Inspection that the horses will need to travel interstate.

### Physical Examinations

During the inspection on the remaining four horses, you take a moment to shine a pen light into each eye and watch for the horse to squint. All horses appear healthy, able to see out of at least one eye, and free from communicable disease.

You write down a physical description of each horse including sex, breed, coloring, distinguishing markings, permanent brands, and lip tattoos so that they can easily be identified at the sale. All of this information will be typed or clearly written on the CVI form back at the office.

Next you collect the name and address of the sale Joe intends to take his horses to as well as the address where the horses are currently housed. You draw blood from each horse for a Coggins test per the requirements of the destination state. You tell Joe you will send the blood off to an official testing laboratory and when the results come back in a few days you can finish the CVI and deliver it, along with the results of the Coggins tests, to him.

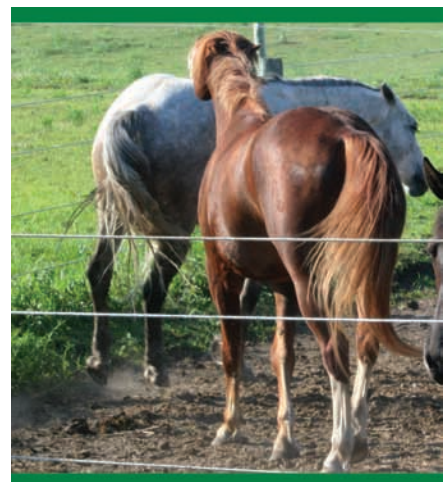
As you gather up your things Joe says, “Thanks so much for your help, doc. I really appreciate you taking the time to make sure transporting and selling these horses goes as smoothly as possible.”

### Recommendations for Safe Transport

Whenever horses are transported, considerations for their safety, and that of the handlers, should be considered. Fighting between horses is the number one cause of injury during transport, so it is important that owners and shippers follow a few guidelines to reduce confrontations among horses. Horse behavior and interactions should always be observed in the holding area before the animals are loaded onto the conveyance. Some signs of aggressive behavior include arched necks, stomping, ears laid back or pinned against the head, biting, kicking, striking, or threatening to bite, kick, or strike.

*Source:*

- McDonnell, Sue. *A Practical Field Guide to Horse Behavior: The Equid Ethogram*. Eclipse Press. Feb 2003



To minimize fighting injuries, horses should not be picked up from multiple locations and loaded onto the same conveyance. Horses that traveled directly to slaughter had fewer external injuries and fewer carcass bruises than horses that made stops at multiple auctions to pick up additional horses. Removing shoes of slaughter horses before they are transported can also reduce injuries from slipping/falling on metal floors of transport vehicles.

Source:

- *Reece V, Friend T, Stull C, et al. Equine Slaughter Transport- Update on Research and Regulations. Journal of the American Veterinary Medical Association 2000;216:1253-1258.*

### Avoid Overcrowding During Transport

Attention should be paid to avoid overcrowding horses on trailers. Each horse should be able to move its head to its full range of motion without coming into contact with the walls or ceiling of the trailer. Shipments containing entirely ponies or young horses are rare, and it is inappropriate to ship adult horses in double deck trailers, so their use is prohibited. Horses that are transported in double deck trailers are more likely to incur abrasions, lacerations, or cuts to the face, wither, croup, or tailhead.

Source:

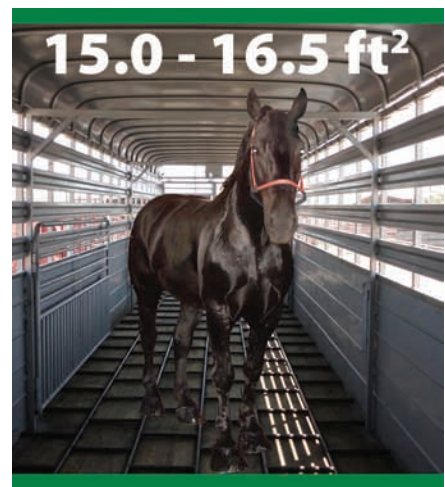
- *Reece V, Friend T, Stull C, et al. Equine Slaughter Transport- Update on Research and Regulations. Journal of the American Veterinary Medical Association 2000;216:1253-1258.*

Horses that are overcrowded in trailers undergo more physiological stress and have greater difficulty rising if they fall down.

- It is recommended that horses have approximately 15.0-16.5ft<sup>2</sup> (1.40-1.54 m<sup>2</sup>) of floor area per horse. (Stull 1999)
- Loading density is another method to calculate area per horse where  $\text{Area} = (0.0182) \times \text{Weight} \wedge 0.675$  (Whiting 1999)

Sources:

- *Stull C. Responses of Horses to Trailer Design, Duration, and Floor Area During Commercial Transportation to Slaughter. Journal of Animal Science 1999;77:2925-2933.*
- *Whiting T. Maximum loading density of loose horses. Canadian Journal of Animal Science 1999;79:115-118.*



### Provide Adequate Ventilation during Transport

Proper ventilation is important to reduce overheating, dehydration, elevated ammonia concentrations, and transmission of infectious viral and bacterial disease. Some transporters install plywood around the base of their trailers to protect their transport vehicles from the damage inflicted by kicking horses. If this is done, it is important to drill holes in the plywood to maintain proper ventilation.

Private research trials have shown some improved cross ventilation from installing vents on either side of the trailer exterior to channel headwinds into the conveyance. These vents are reversible to adapt to winds blowing in different directions and can be adjusted to channel (scoop) air into or exhaust air out of the trailer. While air scoops are not yet widely available on most livestock trailers, the improvements in ventilation they create are worth recommending to clients should they become available.



Source:

- *Friend T.H. Transportation of Horses: In: N.E. Robinson. Current Therapy in Equine Medicine, 6th Edition, 2009. Saunders, New York. 119-123.*

## Special Provisions

Horses that have low body weights or are moderately lame but still within the legal regulatory framework should be shipped with special provisions (described previously). These animals should be the last ones loaded onto the conveyance and the first ones removed. They should be provided with extra bedding and be separated from other horses, or grouped only with familiar horses, if possible.

### Knowledge Review #8

**Horses that incur injuries during transportation are most often a result of which of the following:**

- A.** Fighting between horses
- B.** Improper ceiling height in a single deck trailer
- C.** Horses falling during transport and being unable to rise
- D.** Sharp, protruding objects within the trailer

**Answers are found in the appendix.**

## Summary

This module reviewed slaughter horse conditions in the United States, the regulations that govern transport, and the documentation necessary for interstate and international travel. It also discussed the assessments that should be conducted prior to transporting horses and the measures that can be implemented to ensure the health, safety, and well-being of the animals.

Accredited veterinarians should strictly adhere to the regulations for equine health certificates and Certificates of Veterinary Inspection as set forth by USDA and the States, respectively. The scenario depicted here was a hypothetical, real-life situation faced by an accredited veterinarian that emphasized the tasks required to properly assess a horse's fitness to transport. Keep in mind that regulations change and it is always a good idea to contact the State or country of destination for the most up-to-date information.

## Resources/Web Links

Throughout this module, you were provided with multiple links to information and resources related to transporting horses to slaughter. Many of these links are presented here for your convenience.

- Electronic Code of Federal Regulations  
<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=%2Findex.tpl>
- SHTP on the USDA's website at:  
[http://www.aphis.usda.gov/animal\\_health/animal\\_dis\\_spec/horses/horse\\_transport.shtml](http://www.aphis.usda.gov/animal_health/animal_dis_spec/horses/horse_transport.shtml)
- Equine Infectious Anemia Fact Sheet from USDA  
[http://www.aphis.usda.gov/publications/animal\\_health/content/printable\\_version/fs\\_equine\\_infectious\\_anemia.pdf](http://www.aphis.usda.gov/publications/animal_health/content/printable_version/fs_equine_infectious_anemia.pdf)
- International Animal Export Regulations  
<http://www.aphis.usda.gov/regulations/vs/iregs/animals/>
- National Veterinary Accreditation Program Reference Guide  
[http://www.aphis.usda.gov/animal\\_health/vet\\_accreditation/downloads/nvap\\_ref\\_guide.pdf](http://www.aphis.usda.gov/animal_health/vet_accreditation/downloads/nvap_ref_guide.pdf)
- VS Area Offices  
[http://www.aphis.usda.gov/animal\\_health/area\\_offices/](http://www.aphis.usda.gov/animal_health/area_offices/)
- SAHOs  
<http://www.usaha.org/StateAnimalHealthOfficials.aspx>



## Acknowledgments

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- AVMA Animal Welfare Committee
- AVMA Animal Welfare Division
- Meat Program Division, Canadian Food Inspection Agency

## Photo and Illustration Credits

<b>Page 1</b>	The illustration of North America with Illinois and Texas highlighted depicts the previous locations of horse slaughter plants in the U.S. Now horses are transported to Canada and Mexico for slaughter. <i>Graphic illustration by: Bridget Herrick, Iowa State University</i>
<b>Page 2</b>	<b>(Top)</b> This single deck semi-trailer has adequate floor space to haul 30-32 horses. <i>Photo source: Joey Astling, USDA-APHIS</i> <b>(Bottom)</b> This illustration depicts the Twenty-eight Hour Law, which states that horses can spend up to 28 hours in conveyance, then must be unloaded, provided equine-appropriate food, potable water, and an opportunity to rest for a minimum of six hours. <i>Photo source: Renee Dewell Iowa State University (left), and Joey Astling, USDA-APHIS (right); Graphic illustration by: Andrew Kingsbury, Iowa State University</i>
<b>Page 3</b>	Different types of horse transport vehicles: a commercial single-deck semi-trailer with open ventilation slats on the sides (top), a commercial single-deck semi-trailer with a ridge opening and side holes for ventilation (center) and a gooseneck trailer (bottom). <i>Photo source: Joey Astling, USDA-APHIS (top and center), and Jessica Kennicker, Iowa State University (bottom)</i>
<b>Page 4</b>	<b>(Top)</b> This illustration depicts the potential for aerosol transmission of respiratory infections between horses in a conveyance. <i>Graphic illustration by: Katlyn Harvey, Iowa State University</i> <b>(Bottom)</b> These horses are rehydrating after transport. <i>Photo source: Joey Astling, USDA-APHIS</i>
<b>Page 5</b>	<b>(Top)</b> This graphic illustrates horses are transported from various parts of the U.S. to Canada and Mexico. <i>Graphic illustration by: Andrew Kingsbury, Iowa State University</i> <b>(Bottom)</b> This horse is exhibiting signs of aggression, as his ears are pinned back. <i>Photo source: Patricia Futoma, Iowa State University</i>
<b>Page 6</b>	<b>(Top)</b> VS Form 17-145, which is a required form for horse transport to Canada. <i>Graphic illustration by: Bridget Herrick, Iowa State University</i> <b>(Bottom)</b> This graphic depicts the Equine Information Document which must be completed by the owner for horse transport to slaughter in Canada. <i>Graphic illustration by: Bridget Herrick, Iowa State University</i>
<b>Page 7</b>	This veterinarian is reviewing a Certificate of Veterinary Inspection (CVI) for a horse that just arrived at a feedlot. <i>Photo source: Joey Astling, USDA-APHIS</i>
<b>Page 8</b>	<b>(Top)</b> This photo depicts a sealed livestock trailer (metal ring with yellow head) and accompanying permit to ship directly to slaughter. <i>Photo source: Danelle Bickett-Weddle, Iowa State University</i> <b>(Center)</b> A USDA back tag provides a unique eight-character alpha-numeric identification for this horse. <i>Photo source: Joey Astling, USDA-APHIS</i> <b>(Bottom)</b> This graphic shows an owner/shipper certificate, VS Form 10-13. <i>Graphic illustration by: Bridget Herrick, Iowa State University</i>
<b>Page 9</b>	<b>(Top)</b> This horse depicts a five on the body condition scoring scale, or moderate build. <i>Photo source: Equine Health School of Veterinary Medicine, University of California, Davis</i> <b>(Bottom)</b> This graphic shows the various anatomical parts of a horse used to evaluate body condition. <i>Photo source: Center for Equine Health, School of Veterinary Medicine, University of California, Davis; Graphic illustration by: Katlyn Harvey, Iowa State University</i>
<b>Page 10</b>	This graphic shows photos of the first four body condition scores of horses. Emaciated (top), very thin (second from top), thin (third from top), and moderately thin (bottom). <i>Photo sources: Equine Health School of Veterinary Medicine, University of California, Davis (top and third from top), Patricia Futoma, Iowa State University (second from top), and Megan Smith, Iowa State University (bottom)</i>
<b>Page 11</b>	<b>(Top)</b> The top horse is a Grade 3 on the lameness scale. The bottom horse is a Grade 5. <i>Photo sources: Equine Health School of Veterinary Medicine, University of California, Davis (top), and Jennifer Schleining, Iowa State University (bottom)</i> <b>(Center)</b> The wax-like beads show that this mare is close to foaling. <i>Photo source: Marlene Dorenkamp, Maxwell, Iowa</i> <b>(Bottom)</b> This photo demonstrates a four-month old horse who has its first and second deciduous incisors erupted, but not his third. <i>Photo source: Megan Smith, Iowa State University (bottom)</i>
<b>Page 12</b>	<b>(Top)</b> This photo depicts a vision test, using gauze on a stick moving towards the horse's eye. <i>Photo source: Andrew Kingsbury, Iowa State University</i>

- Page 13** *(Bottom)* This graphic illustrates the veterinarian making notes about the various requirements to transport these particular horses to auction - a CVI that will be valid for 30 days and negative for EIA. *Graphic illustration by: Andrew Kingsbury, Iowa State University*  
*(Top)* This horse has a body condition score of 3 , much like the five horses Joe wanted inspected. *Photo source: Patricia Futoma, Iowa State University*  
*(Bottom)* The horse in this photo has a lame right hind leg. *Photo source: Patricia Futoma, Iowa State University*
- Page 14** *(Top)* In the top photo, a veterinarian checks the vision of a horse using a pen light. In the bottom photo, the veterinarian collects a blood sample. *Photo source: Andrew Kingsbury, Iowa State University (both)*  
*(Bottom)* These horses are exhibiting aggressive behavior by kicking (gray horse) and ears pinned back (chestnut). *Photo source: Patricia Futoma, Iowa State University*
- Page 15** *(Top)* This horse on this trailer has adequate room to move his head without hitting the walls or ceiling. *Photo source: Joey Astling, USDA-APHIS (trailer), and Danelle Bickett-Weddle, Iowa State University (horse); Graphic illustration by: Katlyn Harvey, Iowa State University*  
*(Bottom)* The holes in the plywood of this trailer allow it to properly ventilate. *Photo source: Joey Astling, USDA-APHIS*

## Knowledge Review Answers

### Knowledge Review #1

**Which of the following statements regarding slaughter horses in the U.S. is FALSE?**

- A.** Horses can be transported a maximum of 28 hours before resting.
- B.** There are two USDA inspected horse slaughter facilities in the United States.
- C.** The primary market for horse meat is human consumption in Europe and Japan.
- D.** Owner/shipper certificates are signed by the owner or the transporter, not the accredited veterinarian.
- E.** During a six hour rest period, horses must be offered feed and water.

**The correct answer is B.** Since the District Court ruling in 2007, there are no USDA inspected horse slaughter plants in the United States. The rest of the responses are true as written.

### Knowledge Review #2

**Stress from shipping increases which of the following values? Select all that apply.**

- A.** Cortisol
- B.** Body weight
- C.** Hematocrit
- D.** Lymphocytes

**The correct answers are A and C.** Cortisol and hematocrit increase due to stress from shipping. Horses typically lose body weight during transport due to dehydration and decreased stomach fill from limited access to food and water, making B incorrect. Lymphocytes are suppressed due to the increase in cortisol, making D incorrect.

### Knowledge Review #3

**Which of the following would NOT disqualify a horse as ‘fit to transport’? A horse that is:**

- A.** Unable to bear weight on all four limbs
- B.** Blind in both eyes
- C.** Unable to walk unassisted
- D.** Eight months of age

**The correct answer is D,** only horses younger than 6 months of age are considered unfit to transport.

### Knowledge Review #4

**You examine the teeth of a young horse to determine if it is old enough to be shipped to slaughter. Which teeth should be erupted in a horse older than six months?**

- A.** Di 1
- B.** Di 1 and 2
- C.** Di 1, 2, and 3

**The correct answer is C.** If a horse has erupted deciduous incisors 1, 2, and 3 it is at least six months of age.

### Knowledge Review #5

Given the mare could be pregnant, what recommendation(s) could you make to your client? Select ALL that apply.

- A. Examine the mare, and if she appears close to foaling, do not ship her.
- B. Examine the mare, and if she appears to be only a few months pregnant, approve her to transport.
- C. Do not examine the mare, but approve her to ship because it is very unlikely she will foal during transit.

The correct answers are A and B. Mares that are close to foaling should not be approved for transport. If a mare appears to be in early gestation she can be approved for transport, as long as she has no other conditions of concern.

### Knowledge Review #6

Based on the descriptions provided on the previous page, what is the closest estimate of these horses' body condition score?

- A. 1
- B. 3
- C. 5

The correct answer is B. With spinous processes and ribs partially covered in fat and easily visible but rounded hook and pin bones, these horses have a body condition score between 2.5-3.5.

### Knowledge Review #7

With regards to shipping a horse with a Grade 4 lameness without any medical intervention, what would you recommend to Joe?

- A. Ship the horse under normal conditions
- B. Ship the horse only under special provisions
- C. Do not ship the horse

The correct answer is C. This horse does not meet the soundness requirements to be shipped to slaughter so it should not be transported. Horses with a Grade 3 require special provisions and this horse has a more severe lameness.

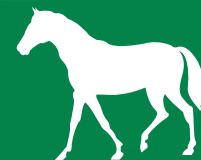
### Knowledge Review #8

Horses that incur injuries during transportation are most often a result of which of the following:

- A. Fighting between horses
- B. Improper ceiling height in a single deck trailer
- C. Horses falling during transport and being unable to rise
- D. Sharp, protruding objects within the trailer

The correct answer is A. All of the above are potential sources of injury, but fighting among horses accounts for the largest percentage of documented in-transit injuries.

# Equine Granulocytic Ehrlichiosis (formerly Anaplasmosis) Disease Brief



## Etiology

Equine Granulocytic Ehrlichiosis (EGE), also called Potomac Horse Fever, is caused by the rickettsial agent *Anaplasma phagocytophila*. The organism is an obligate intracellular gram-negative bacterium that replicates in the cytoplasmic vacuoles of host cells, particularly granulocytes and monocytes, to form microcolonies called morulae.

## Species affected

*A. phagocytophila* has a wide host range; naturally occurring infections have been recorded in horses, burros, dogs, llamas, and rodents. Humans have also been found to be susceptible to *A. phagocytophila* infections.

## Geographic distribution

*A. phagocytophila* frequently infects horses in the foothills of northern California. Other states with confirmed clinical infections include Arkansas, Colorado, Connecticut, Florida, Illinois, Minnesota, Pennsylvania, and Washington. Cases have also been confirmed in British Columbia, Great Britain, South America, and Sweden.

## Transmission

EGE is a blood-borne infection transmitted by bites from ticks in the family Ixodidae. Infections can also be transmitted by blood transfusions in humans. Mechanical transmission by biting insects has been suggested as a possible means of spread.

## Incubation period

The incubation period is 1-14 days in horses and 7-10 days in humans.

## Clinical signs

Severity of signs varies with age of the animal and duration of the illness, becoming more severe over several days.

Horses: Less than a year old, fever may be the only clinical sign. One to three year olds develop fever, depression, mild limb edema, and ataxia. Adults exhibit the characteristic signs of fever, partial anorexia, depression, reluctance to move, limb edema, petechiation, and icterus.

## Zoonotic potential

*Anaplasma phagocytophilum* is zoonotic and causes human granulocytic ehrlichiosis (HGE). HGE is a generalized disease ranging from mild nonspecific symptoms to severe and possibly fatal hematological disorders. Gastrointestinal signs are common and may be combined with photophobia, conjunctivitis, joint pain, coughing, and confusion.

## Diagnosis

The initial diagnosis is usually based on the history, clinical signs, hematologic abnormalities, and changes in serum chemistry. Definitive diagnosis is by demonstration of the characteristic cytoplasmic inclusion bodies in a standard blood smear and serology.

## Prevention and control

Horses that live in areas with *Ixodes* tick populations should be checked frequently for ticks. If found, ticks should be promptly removed with gloved hands. Human tick bites should be thoroughly disinfected after removal of the tick, and hands should be washed with soap and water. It is important to control tick populations in horse habitats to prevent infection.

## Sources

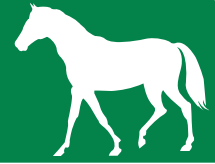
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- Franzen P. et al. Death of a horse infected experimentally with *Anaplasma phagocytophilum*. The Veterinary Record. 27 January 2007. <http://veterinaryrecord.bvapublications.com.proxy.lib.iastate.edu:2048/cgi/reprint/160/4/122?view=long&pmid=17259454>

This information was developed by staff veterinarians at the CFSPH and approved by APHIS for use as training materials for the USDA APHIS National Veterinary Accreditation Program.





# Equine BCS Range from 1 to 9



1.



## 1. Emaciated

The spinous processes of the vertebrae, ribs, tailhead, and hook and pin bones are all prominently seen. The bones of the withers, shoulders, and neck are also easily identified, and no fat is palpable anywhere. Considered unfit to travel.

## 2. Very Thin

The vertebral spinous processes are prominently seen, as well as the ribs, tailhead, and hook and pin bones. The bone structures of the withers, neck and shoulders are still fairly noticeable.

3.



## 3. Thin

The spinous processes are still outstanding; however, their lower halves are covered by fat. The individual vertebrae are not distinguishable. A very thin layer of fat can be felt over the ribs. The tailhead is prominent; however, the pin bones are not visible. Hook bones are visible but rounded. The withers, shoulders, and neck are all accentuated.

## 4. Moderately Thin

The horse's spinous processes create a negative crease along the back. The rib outlines are faintly seen. Hook bones are not visible, and the withers, neck, and shoulders are not obviously thin. Fat can be felt around the tailhead.

5.



## 5. Moderate

The spine of the horse is level with surrounding muscle height. Ribs are not visible but are easily felt. The fat palpable around the tailhead feels slightly spongy. The withers appear rounded with the neck and shoulder blending smoothly into the body.

## 6. Moderately Fleshy

There is fat around the tailhead that feels soft, whereas fat over the ribs feels spongy. There are small fat deposits along the sides of the withers, behind the shoulders, and along the sides of the neck. There might be a slight crease down the back of the horse.

7.



## 7. Fleshy

Fat is noticeable within the withers, neck, and behind the shoulders. The horse's ribs can be felt, but there is noticeable fat between individual ribs. Fat around the tailhead is soft. There may also be a crease down the back of the horse.

## 8. Fat

The horse has a crease down the back. Spaces between the ribs are so filled with fat that the ribs are difficult to feel. The area along the withers and tailhead are filled with fat, though fat around the tailhead is very soft. The space behind the shoulders is filled in flush. There is some fat deposited along the inner buttocks.

9.



## 9. Extremely Fat

The back crease is very obvious, with fat appearing in patches over the ribs. There is bulging fat around the tailhead, withers, shoulders, and neck. The inner buttocks may be rubbing together due to excessive fat. The flank will be filled-in flush.

Source: Henneke D, Potter G, Kreider J, et al. Relationship Between Condition Score, Physical Measurements and Body-Fat Percentage in Mares. Suffolk, England: Equine Veterinary Journal, 1983;371-372.